Fullagar, Jill

From: Labiosa, Rochelle
Sent: Monday, July 08, 2019 4:00 PM
To: Fullagar, Jill
Subject: FW: comments on OA water quality goals paper

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From: Labiosa, Rochelle
Sent: Wednesday, December 07, 2016 9:31 AM
To: Alexandria Boehm <aboehm@stanford.edu>
Subject: FW: comments on OA water quality goals paper

Hi Ali- FYI – this did not go through to your gmail alias; trying again

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From: Labiosa, Rochelle
Sent: Tuesday, December 06, 2016 9:24 PM
To: 'Alexandria Boehm' <aboehm@stanford.edu>
Subject: comments on OA water quality goals paper

Hi Ali,

Apologies that this is so late – my time has been really short the last few weeks. Thanks again for the opportunity to comment and for bringing everyone together to discuss the science, etc.
I concur with Dana's previous comment to edit how opinions are attributed (and her suggestions therein).

Below are my overarching comments:

- A set of working definitions and clarity of terms and concepts would be helpful – for example, threaded throughout the document is the phrase "water quality goals" which is differentiated from "possible criteria" – see, e.g., "to chart a path toward development of new acidification water quality goals and, in the long term, possible criteria" emphasis added. In the context of the CWA, a water quality standard (WQS) defines the water quality goals of a water body, by designating the use or uses to be made of the water. As stated in the EPA WQS Handbook: "States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act. "Serve the purposes of the Act" (as defined in sections

101(a)(2), and 303(c) of the Act) means that water quality standards should: 1) provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water ("fishable/swimmable"), and consider the use and value of State waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation." If "water quality goal" is something other than what is intended to be used for CWA purposes, this should be discussed in the document or further fleshed out in the introduction.

- Although the 0.2 pH unit deviation from natural conditions has been identified as one of the most likely candidates for near-term adoption as a "water quality goal"—and included in the table on page 7, this provision is already in many states' and tribes' WQS and is in CA's WQS – no new adoption would be needed. There is also a lot of discussion in the comments on the document that I have seen thus far re better defining what the natural conditions baseline is –however, the definition of what natural conditions means is typically in state/tribal WQS – for example in Oregon WQS: *"Natural Conditions" means conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the state that are not influenced by past or present anthropogenic activities. Disturbances from wildfire, floods, earthquakes, volcanic or geothermal activity, wind, insect infestation and diseased vegetation are considered natural conditions.* It could be that the baseline needs to be quantified, but "lack of anthropogenic influence" is a common definition.

- For the biological "goal" session, similarly, there was a lack of clarity about the purpose of identifying vulnerable uses (CWA implementing regs refer to the "most sensitive" use as the one that should be protected if only one criterion is established; states can and do at times establish multiple criteria thresholds for different uses). Typically the development of protective chemical criteria is as a threshold to protect a use (they go hand-in-hand), unless the goal is "biocriteria" or thresholds of impact e.g., damage/harm to a use that shows that there is a problem but not necessarily what the driving WQ concern is. Example biocriteria statement from OR WQS: "Waters of the State must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities." Biocriteria are typically implemented using biological index scores or other measures of ecological health (Dana mentioned the biological condition gradient).

    - There is a statement in the question 3, that - *Non-specialists who are employed to do routine monitoring must be able to easily implement research methods and technologies.* A recurring question in that session was "who would do the monitoring of biological and/or chemical parameters for OA" with some assumptions made that permitted dischargers would monitor for OA parameters (unfamiliarity with what dischargers actually measure, i.e, concentrations of constituents in the effluent of the discharge)- therefore, some clarification on roles and responsibilities would be helpful as well.

- In the Session II summary, it would be helpful to clarify that by "development of federal criteria", what is meant is the development of federal criteria *recommendations* (304(a) criteria are guidance recommendations for states and tribes and are not binding)

- It seems that carbonate saturation state is often used when what is meant is aragonite saturation state?

- An important baseline question that came up briefly was refugia (e.g., eelgrass, kelp)- how are conditions potentially different in such environments

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